Figure 1

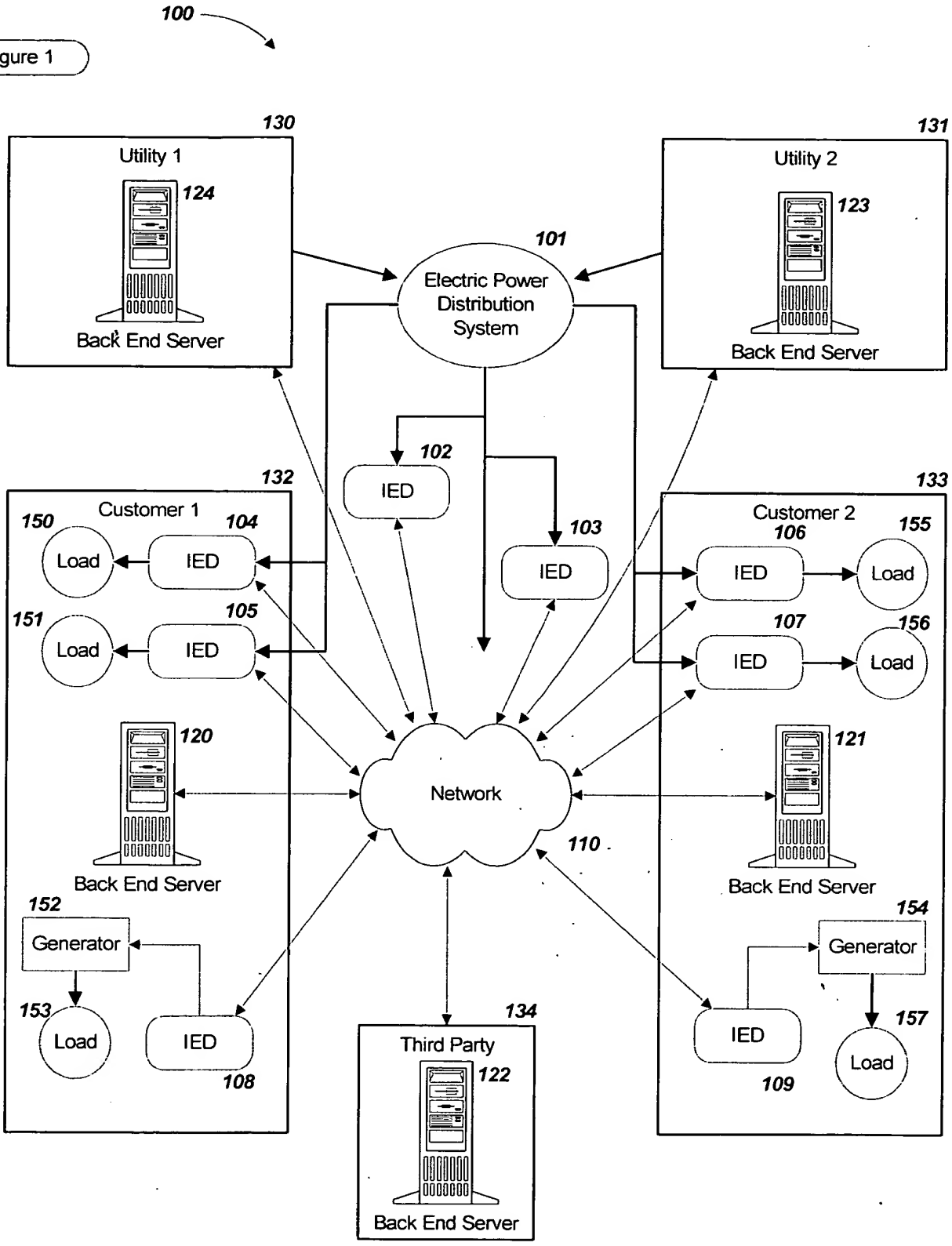

100
130
Utility 1
124
Back End Server
131
Utility 2
123
Back End Server
101
Electric Power Distribution System
102
IED
103
IED
132
Customer 1
150
Load
104
IED
151
Load
105
IED
120
Back End Server
152
Generator
153
Load
IED
108
133
Customer 2
106
IED
155
Load
107
IED
156
Load
121
Back End Server
154
Generator
157
Load
IED
109
Network
110
134
Third Party
122
Back End Server

Figure 2a

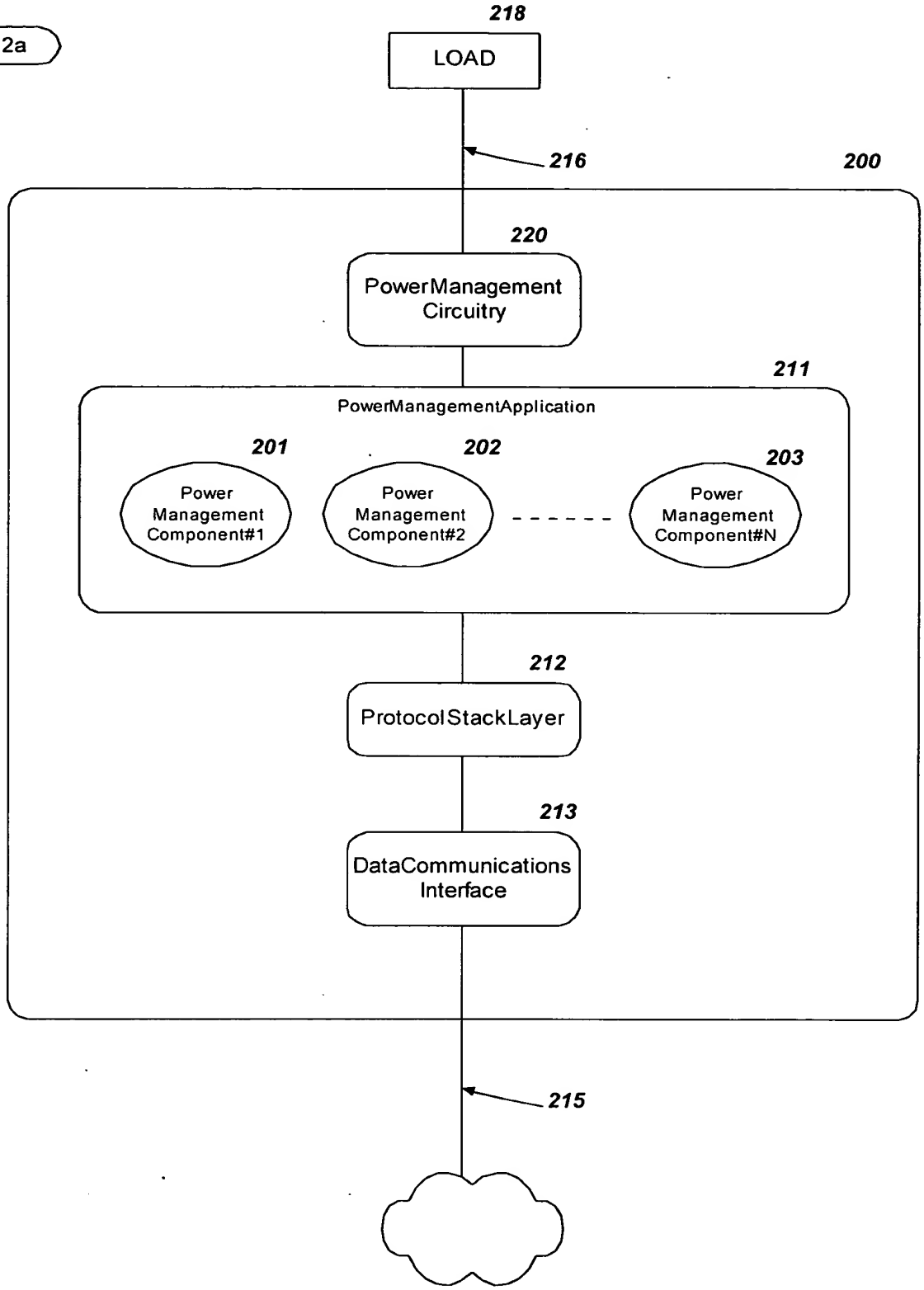

218
LOAD
216
200
220
PowerManagement Circuitry
211
PowerManagementApplication
201
202
203
Power Management Component#1
Power Management Component#2
Power Management Component#N
212
ProtocolStackLayer
213
DataCommunications Interface
215

Figure 3a

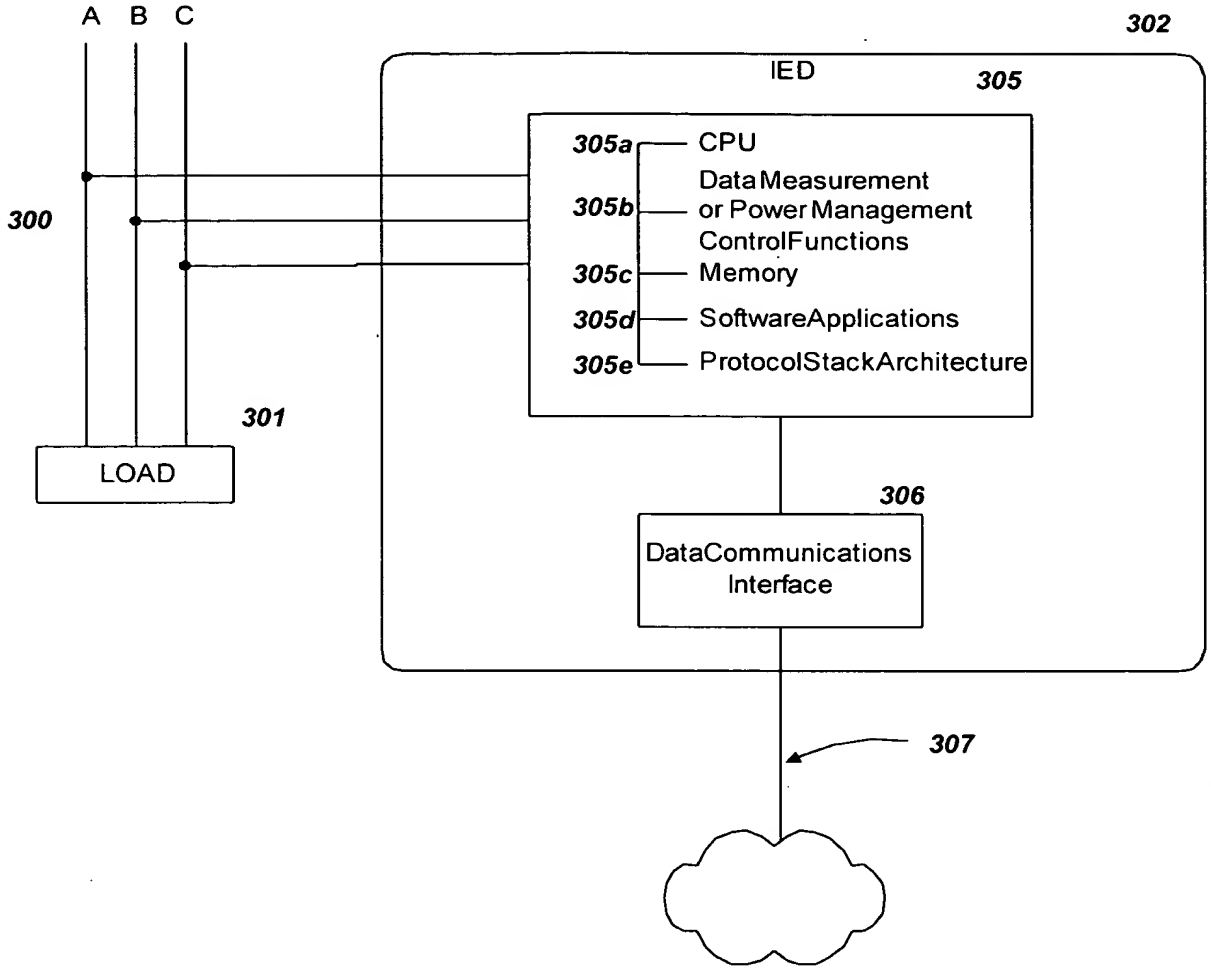

A
B
C
302
IED
305
305a
CPU
305b
Data Measurement or Power Management Control Functions
305c
Memory
305d
Software Applications
305e
Protocol Stack Architecture
300
301
LOAD
306
Data Communications Interface
307

Figure 3b

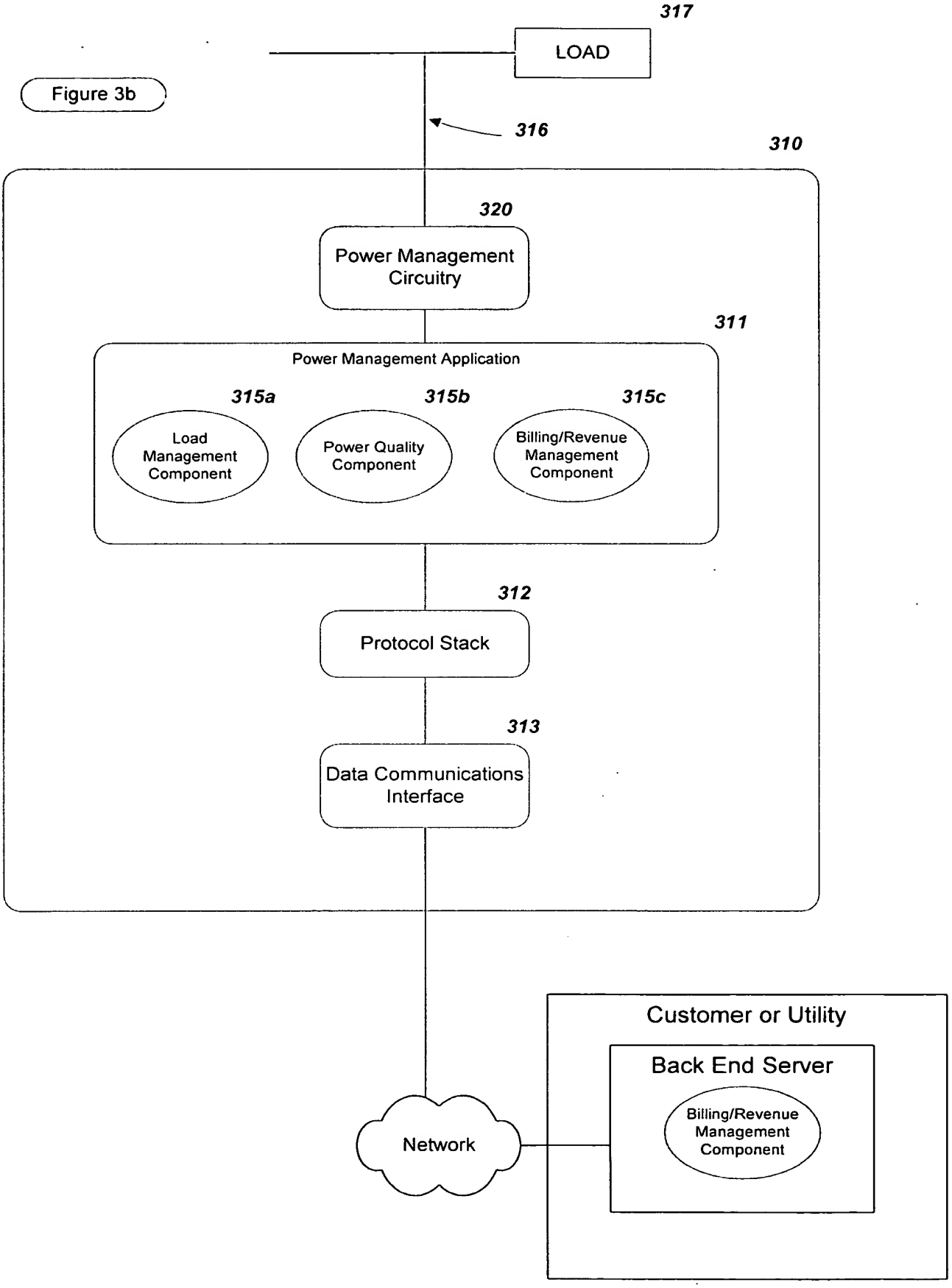

317
LOAD
316
310
320
Power Management Circuitry
311
Power Management Application
315a
Load Management Component
315b
Power Quality Component
315c
Billing/Revenue Management Component
312
Protocol Stack
313
Data Communications Interface
Network
Customer or Utility
Back End Server
Billing/Revenue Management Component

Figure 3c

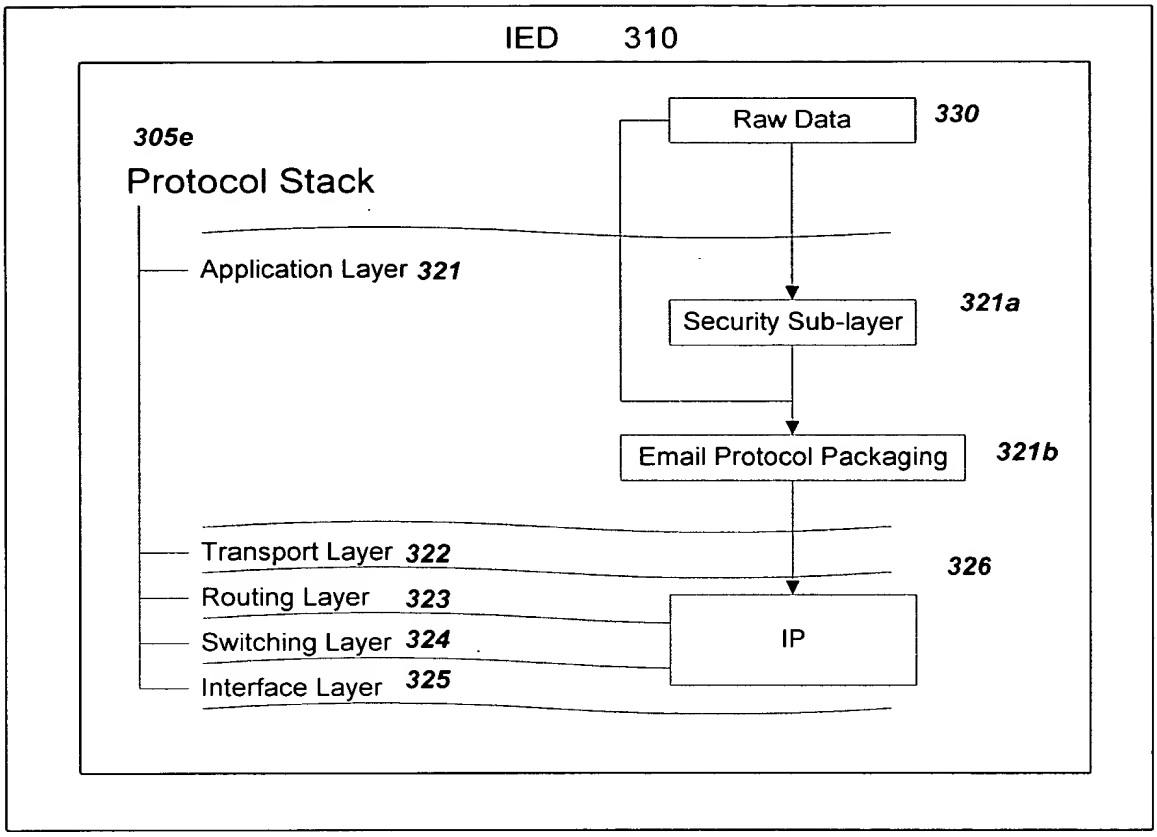


Figure 4a

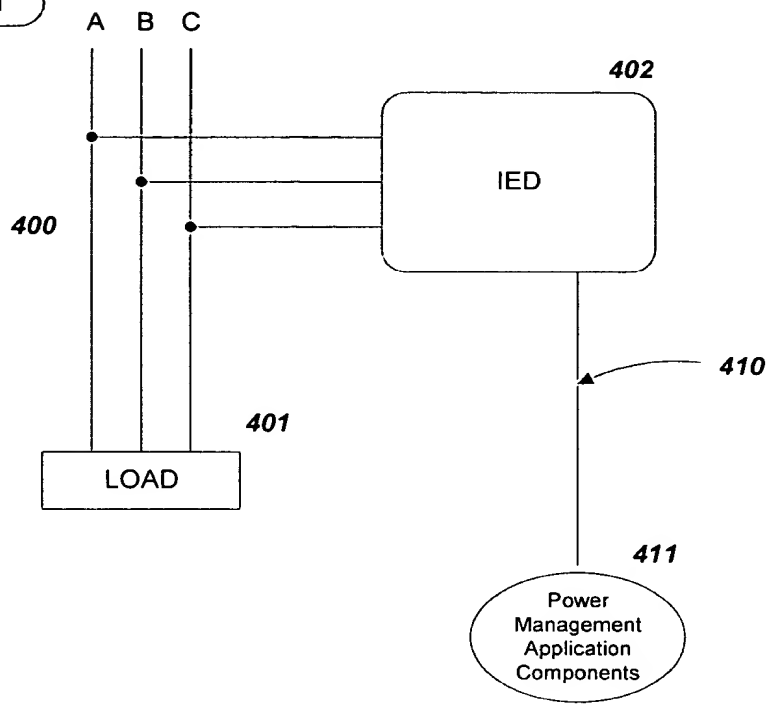


Figure 4b

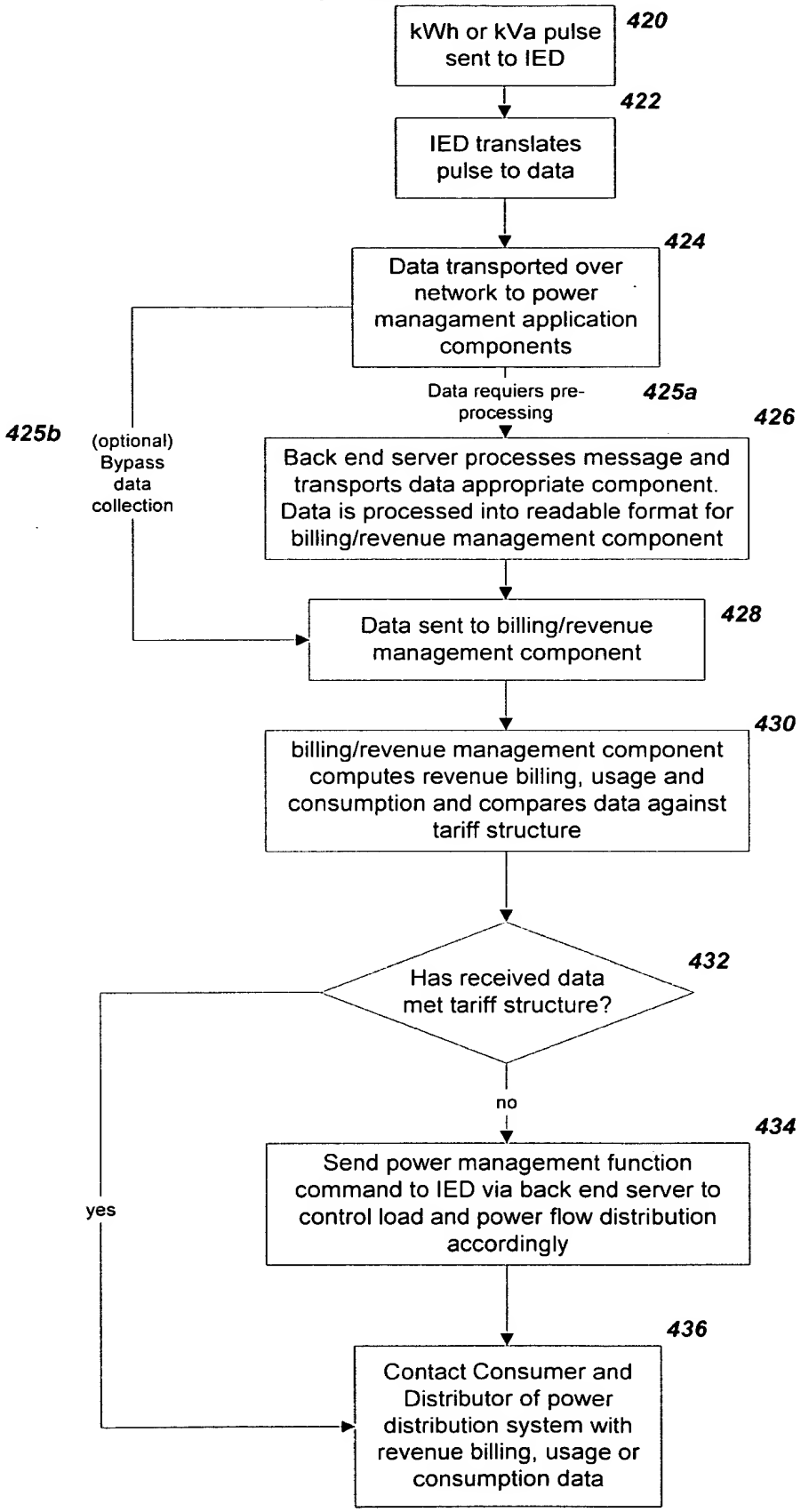


Figure 5a

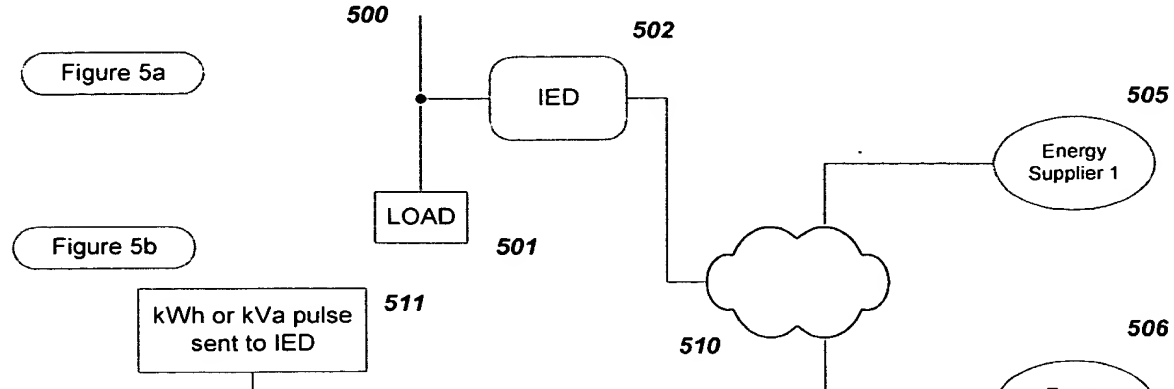


Figure 5b

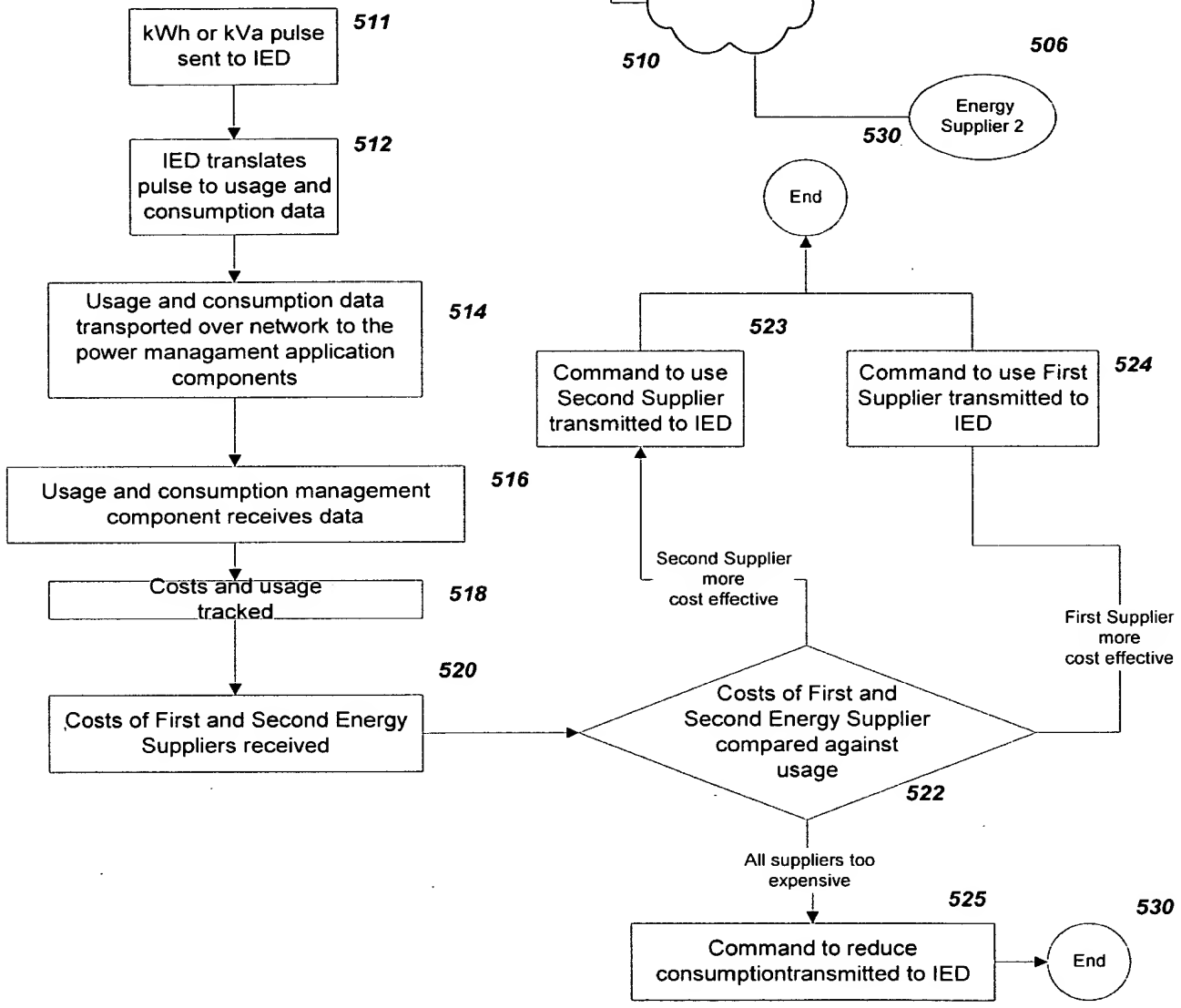


Figure 6

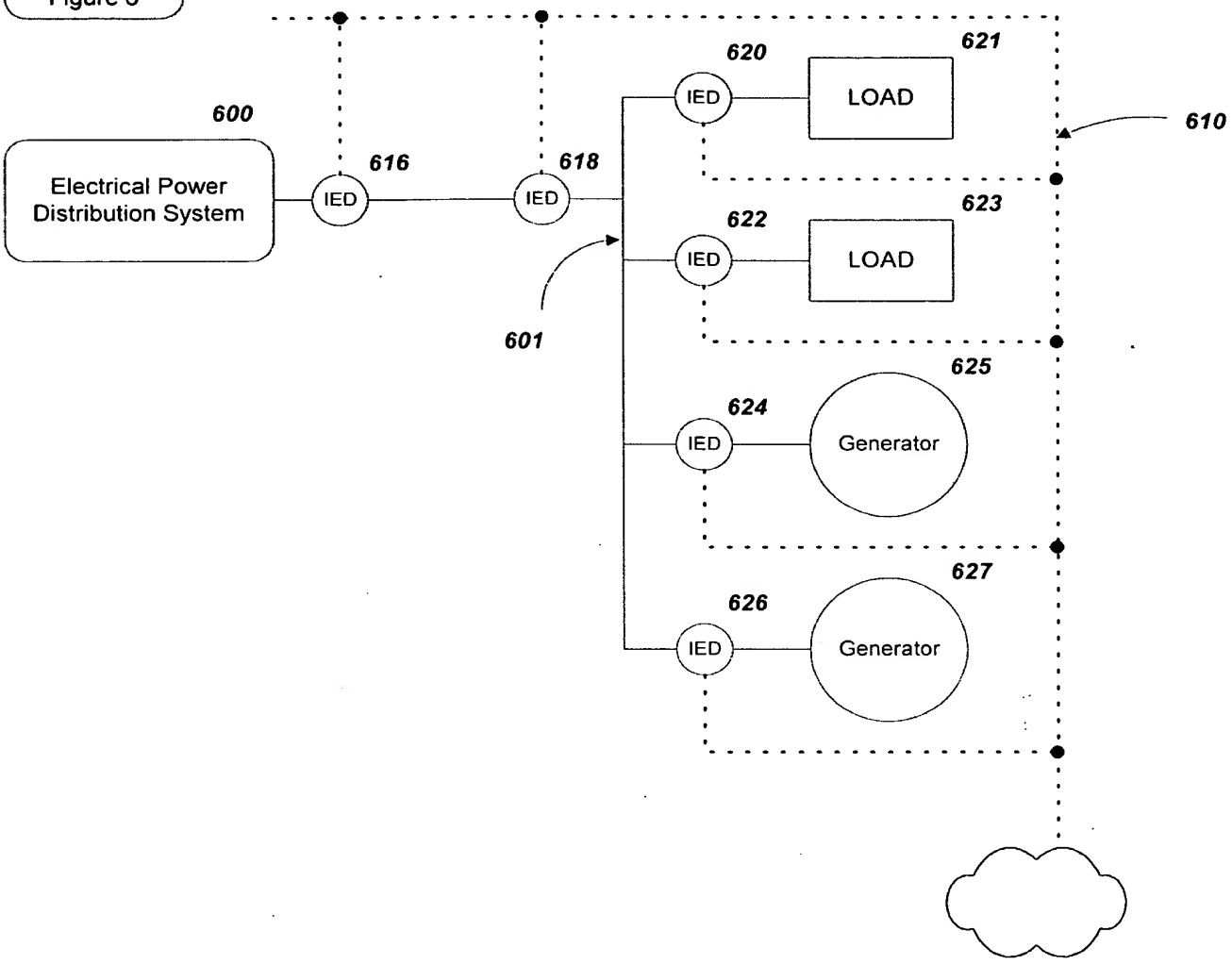


Figure 7

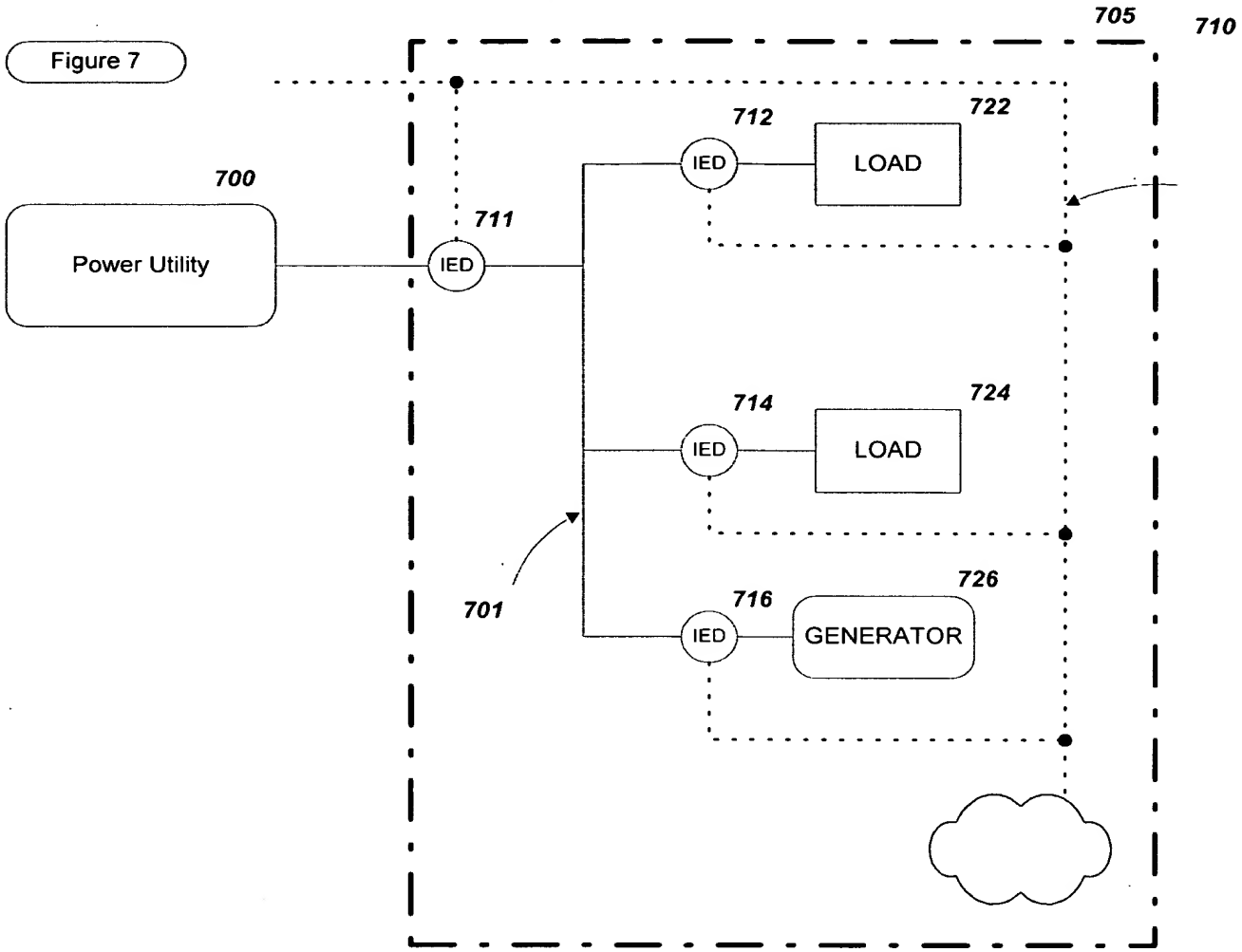
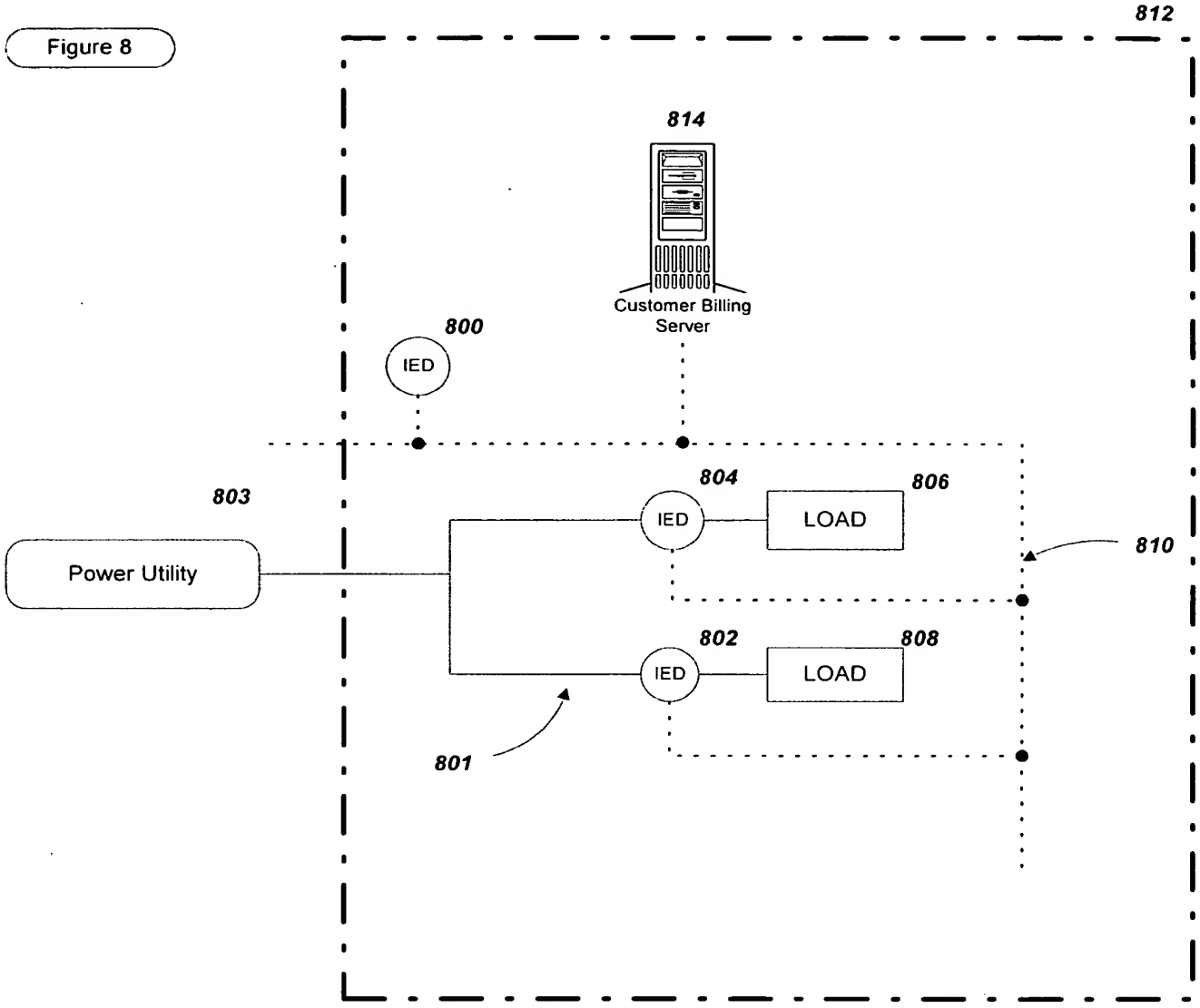


Figure 8


812
814
Customer Billing Server
800
IED
803
804
806
IED
LOAD
Power Utility
810
802
808
IED
LOAD
801

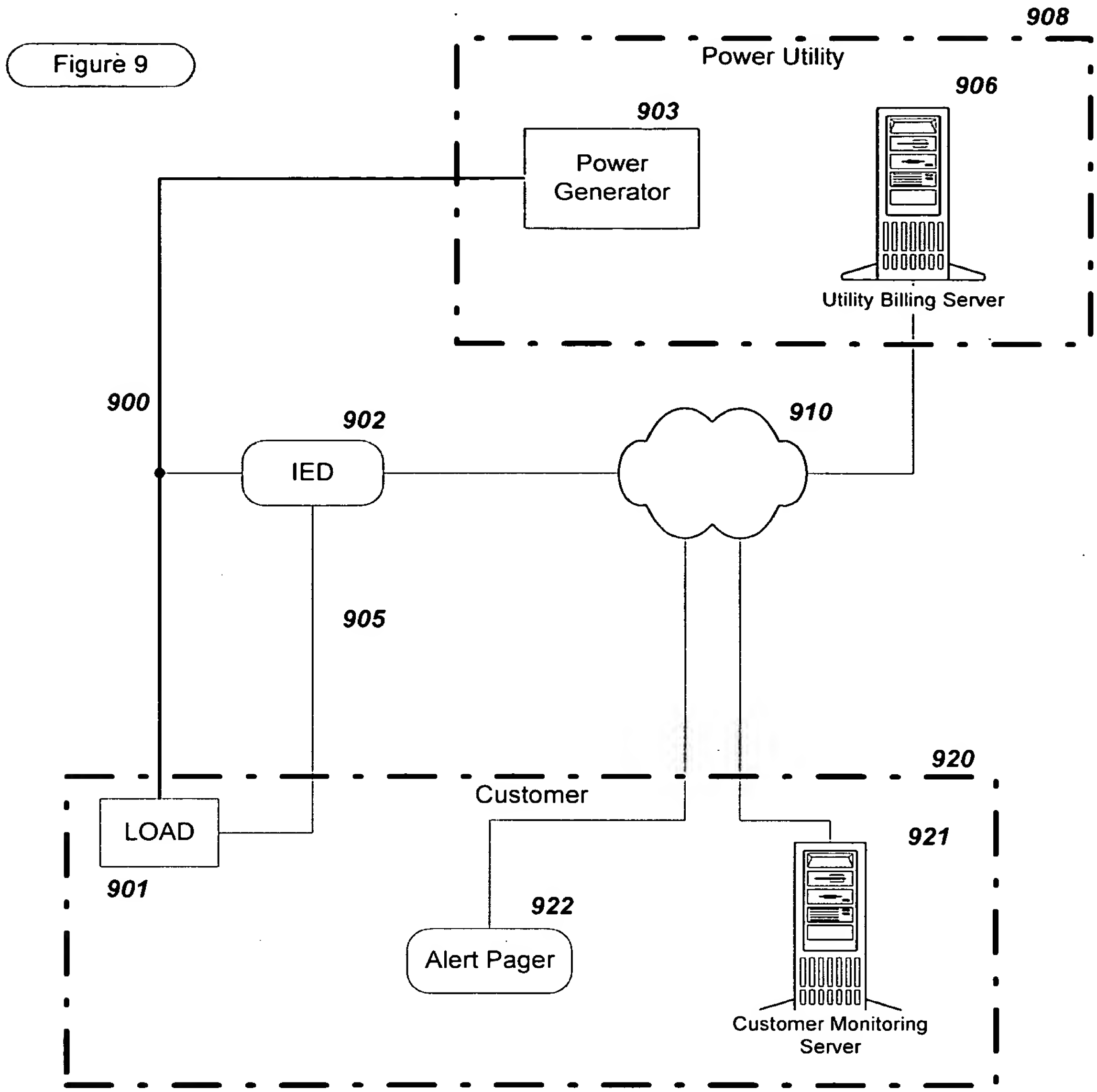
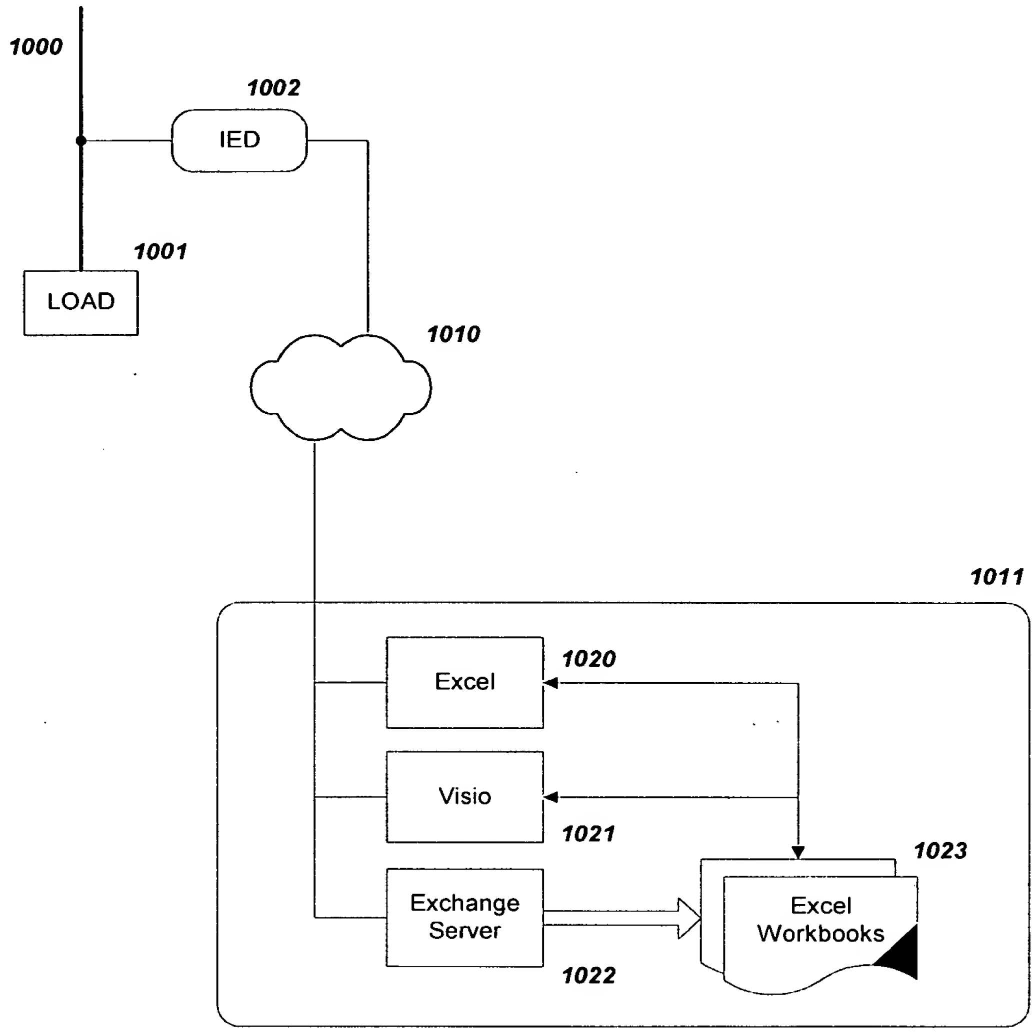


Figure 9
908
Power Utility
906
903
Power Generator
Utility Billing Server
900
902
IED
910
905
920
Customer
LOAD
901
921
922
Alert Pager
Customer Monitoring Server

Figure 10


1000
1002
IED
1001
LOAD
1010
1011
Excel
1020
Visio
1021
Exchange Server
1022
1023
Excel Workbooks

Site1.a8500 Default Diagram

LABEL	VALUE
I a	197.97
I b	207.52
I c	237.82
Vln c	479.28
Vln b	371.46
Vll ca	580.46
Vll ab	589.1
Vll bc	586.28
Vll avg	585.28
Vln avg	357.23
I avg	214.44
PF sign tot	-94
Freq	59
CL1 LocalTime	08:32.9

Sum of Currents: 643.31

Formula-based Setpoint: OVER 550 Volts

Change Update Rate
Type in the number of seconds you would like between page updates and hit <RETURN> 10

Some features to implement:
Auto-detection: Excel could automatically add a worksheet (a "tab" below) when it detects a new device on the network
Complex Aggregation: Because it is Excel, you can do anything you want, easily
Logging: You could write simple scripts to log the values on the left to an Access DE
Animation: Charts, warnings, etc
Onboard logs could be displayed easily
Default diagrams: we just need to create an excel template for each device

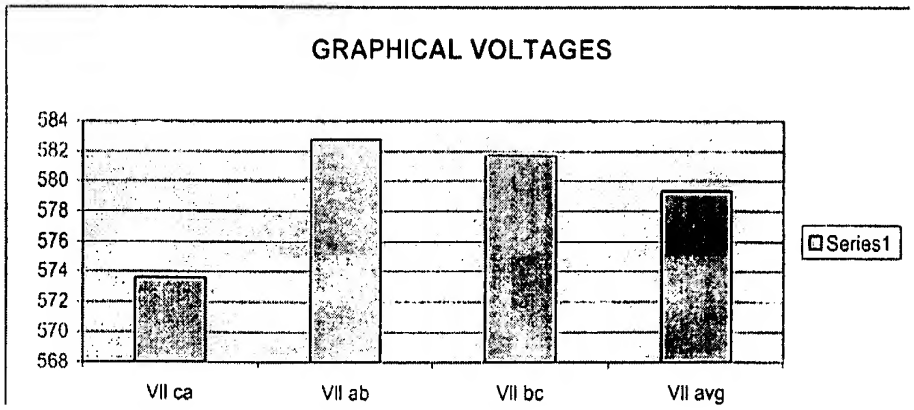


Figure 11

Figure 12

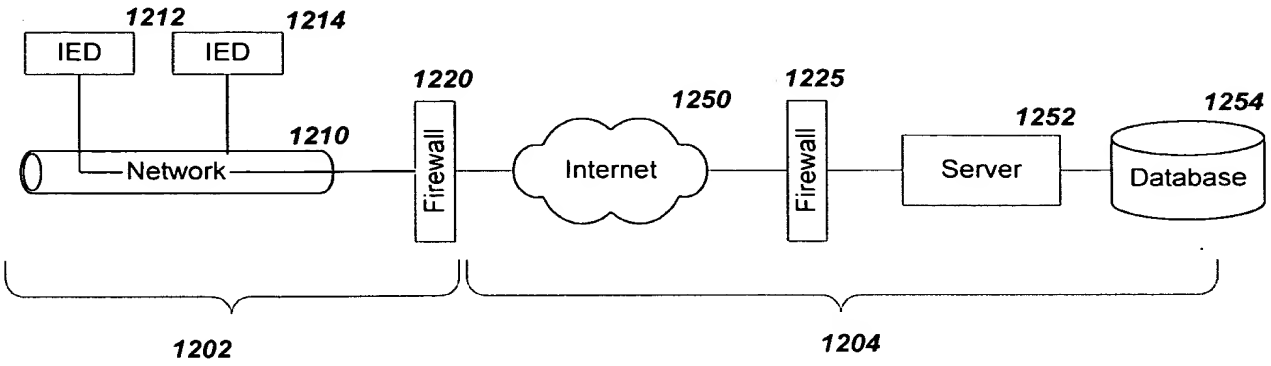


Figure 13

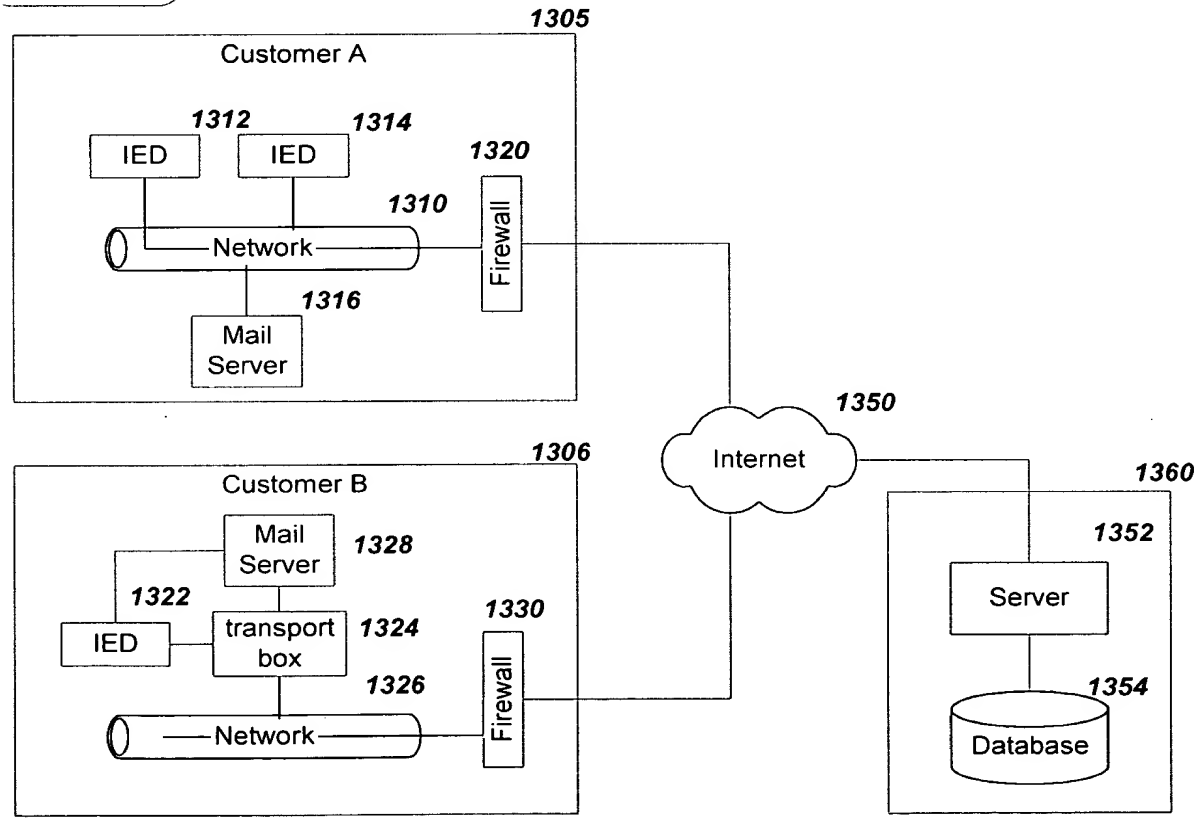


Figure 14

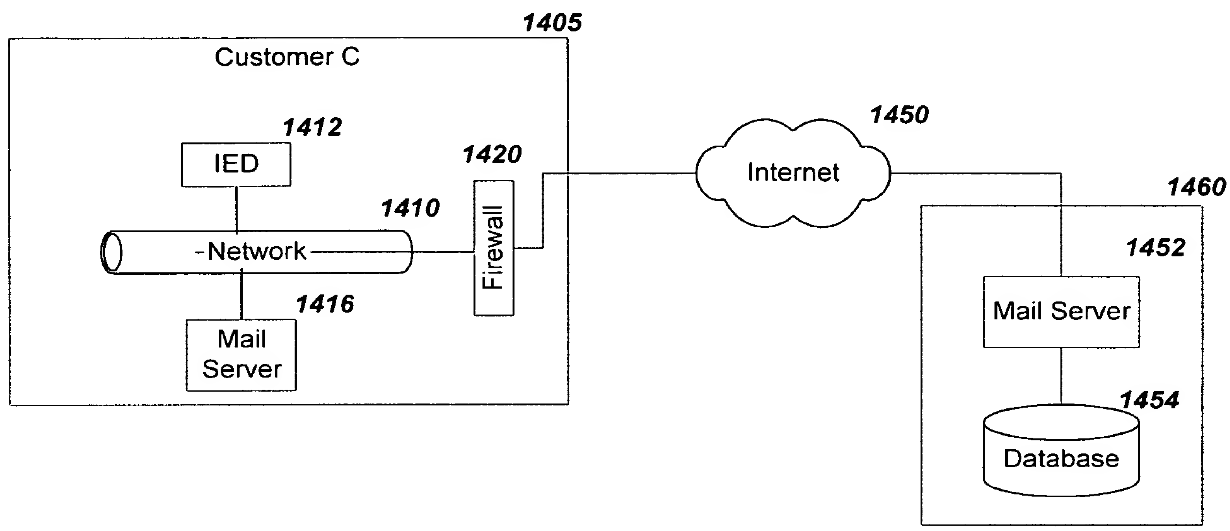

1405
Customer C
1412
IED
1420
1410
Network
Firewall
1416
Mail Server
1450
Internet
1460
1452
Mail Server
1454
Database

Figure 15a

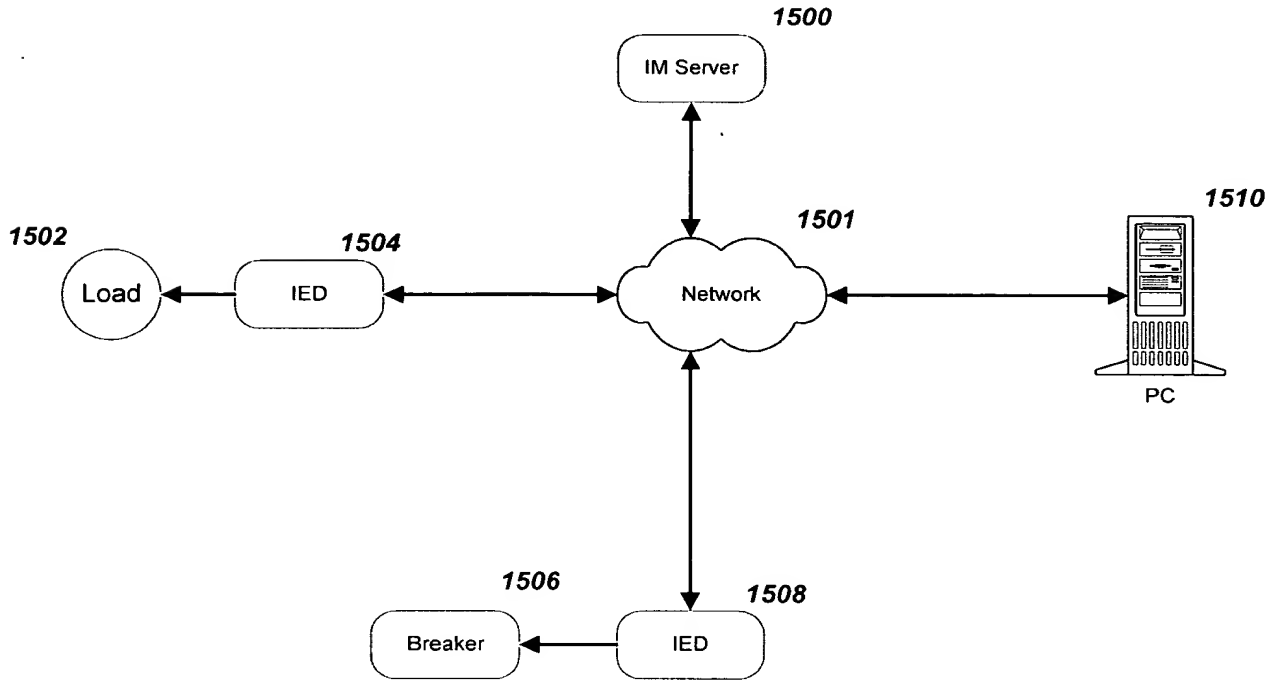


Figure 15b

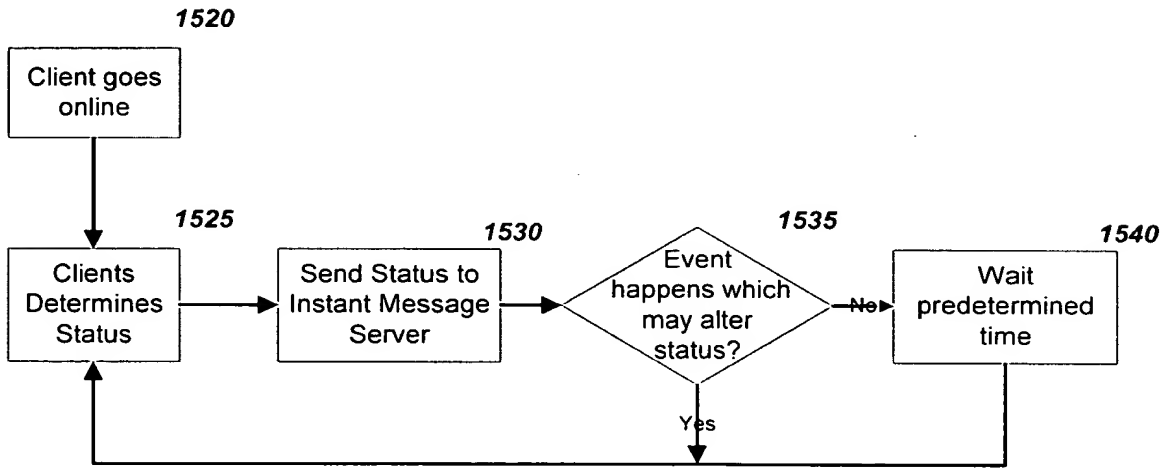


Figure 15c

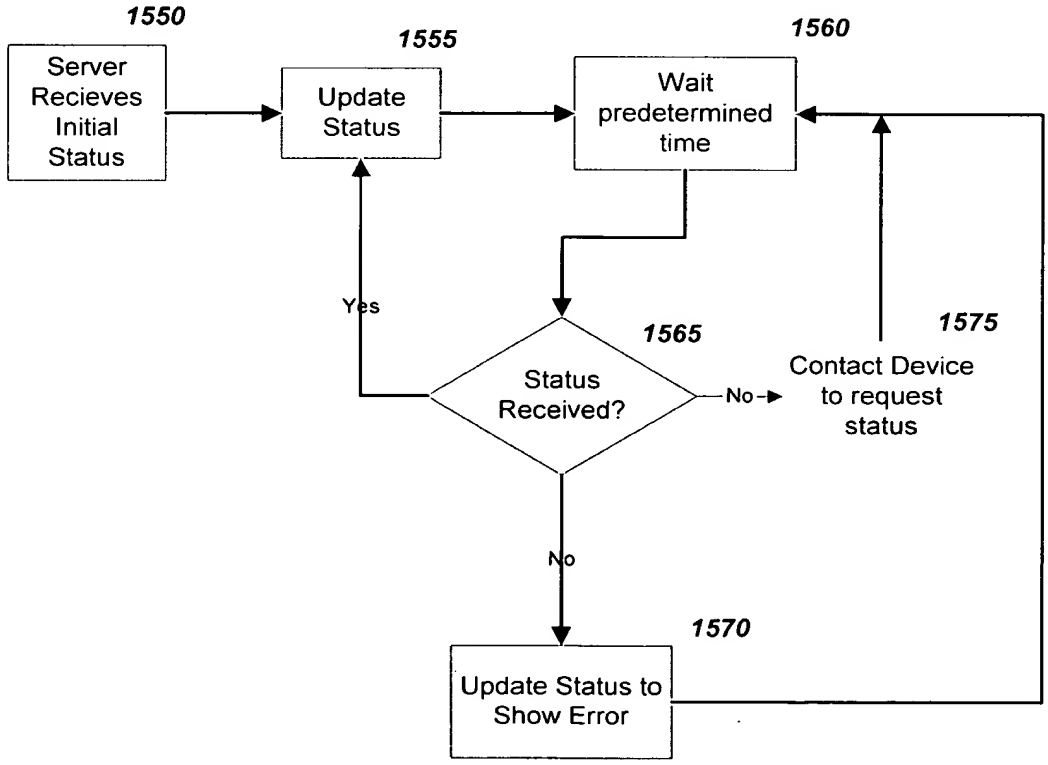


Figure 16

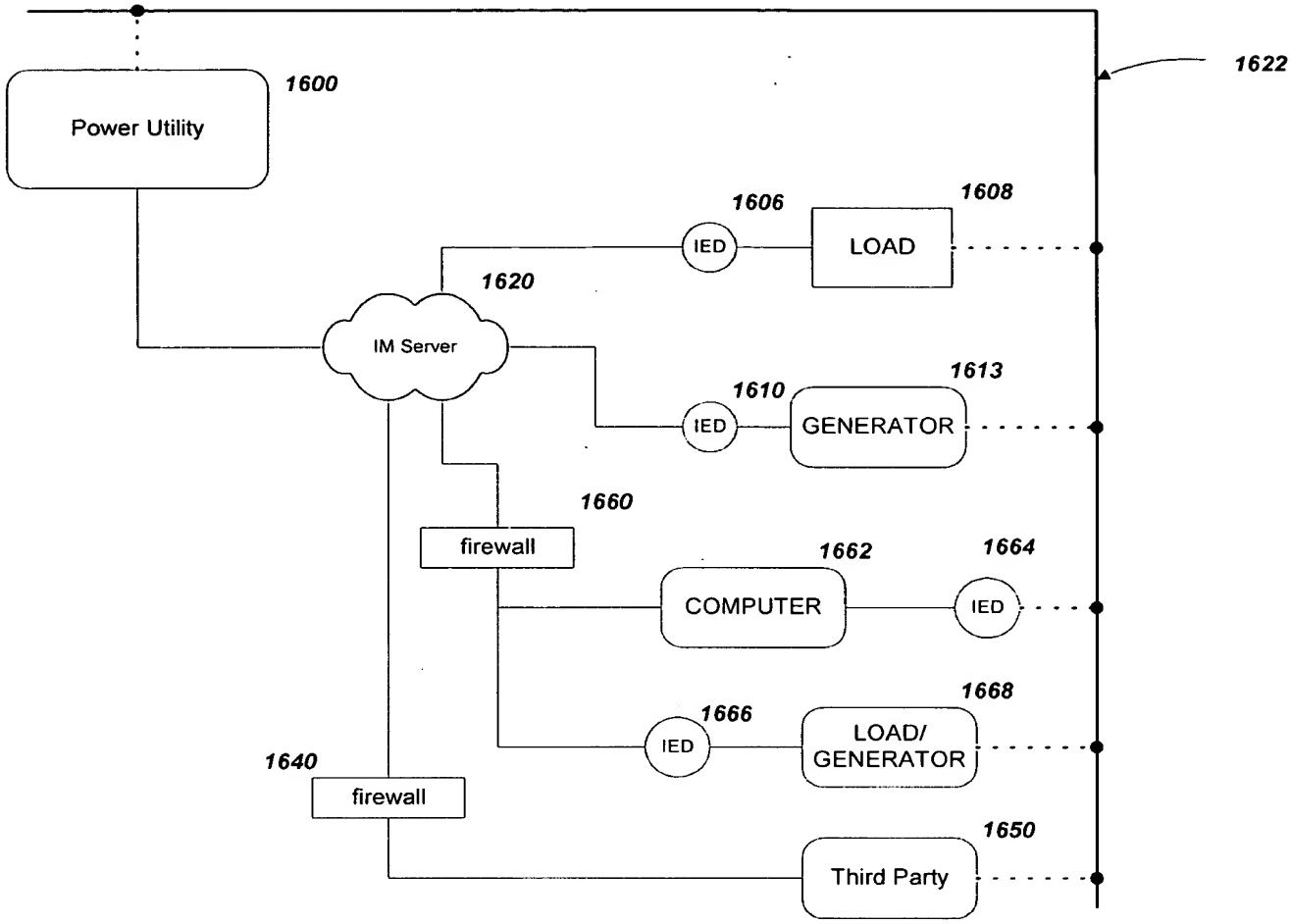
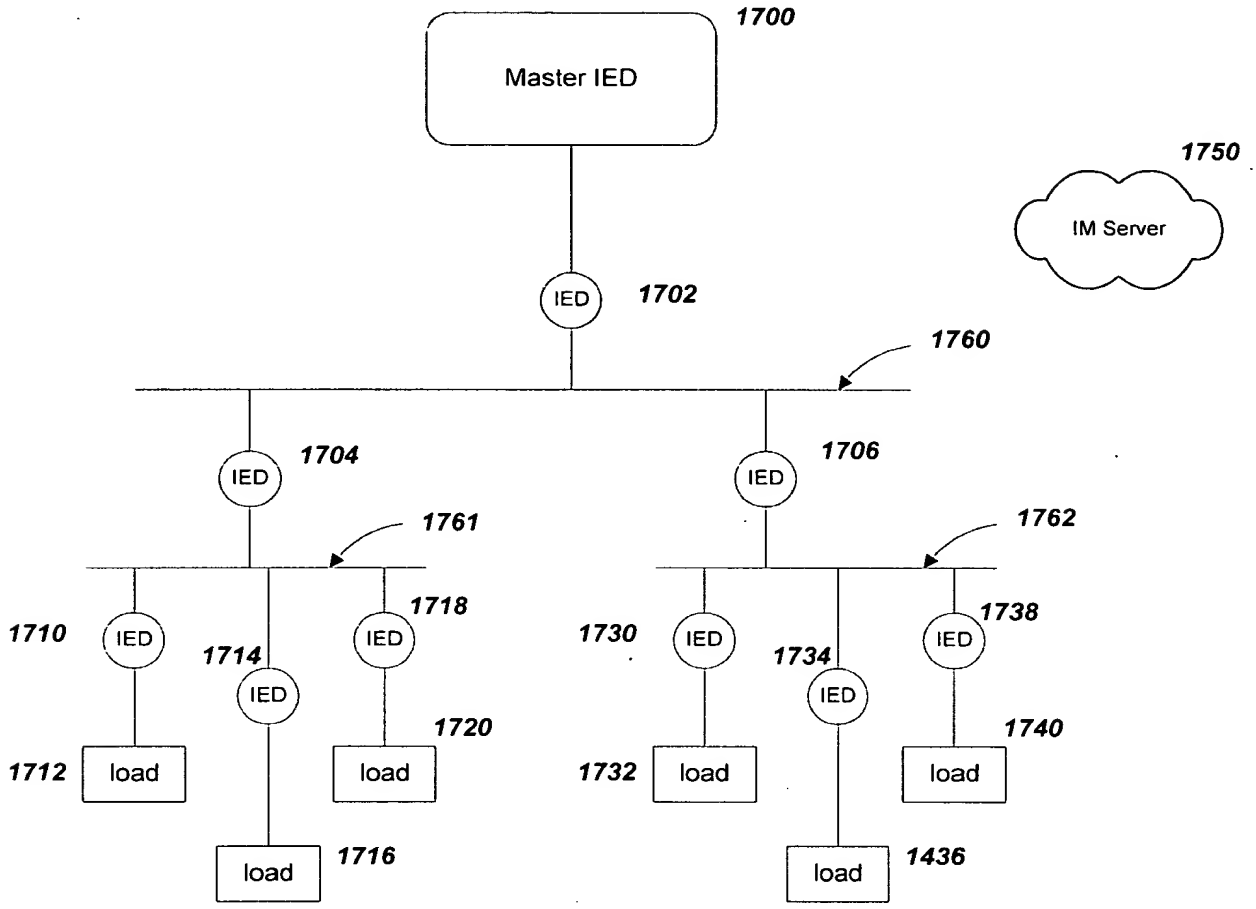

1622
1600
Power Utility
1606
1608
IED
LOAD
1620
IM Server
1610
1613
IED
GENERATOR
1660
firewall
1662
1664
COMPUTER
IED
1668
1666
IED
LOAD/
GENERATOR
1640
firewall
1650
Third Party

Figure 17


1700
Master IED
1750
IM Server
IED
1702
1760
1704
IED
1706
IED
1761
1762
1710
IED
1718
1714
IED
IED
1730
IED
1738
1734
IED
IED
1720
1740
1712
load
load
1732
load
load
1716
load
1436
load